REMARKS/ARGUMENTS

This Amendment is in response to the final Office Action dated August 29, 2007. Claims are 1-20 pending. Claims 1-20 are rejected. Claims 1-20 have been amended and no claims have been cancelled or added. Accordingly, claims 1-20 remain pending in the present application.

Claims 1 and 11 have been amended to recite generating a model of a simulated multilayer stack prior to production of the multilayer stack, and obtaining the optimal reflectivity value for the simulated multilayer stack.

Claims 2-10 have been amended to remove reference to "steps". Claims 12-20 have been amended to remove reference to "includes" and to recite "comprises". These amendments are seen by Applicant as broadening or cosmetic, and as such, is not subject to the prosecution history estoppel imposed by Festo. For the record, Applicant points out that the Supreme Court in Festo noted that a cosmetic amendment would not narrow the patent's scope and thus would not raise the estoppel bar.

Claims 1-20 are rejected under 35 USC 102(b) as being anticipated by "IMD-Software for Modeling the Optical Properties of Multilayer Films" by Windt (hereinafter Windt). Applicant respectfully disagrees as to the claims as amended.

The invention, as recited in amended independent claims 1 and 11, addresses the limitations of lithography simulation programs in optimizing reflectivity in the lithography application for multilayer stacks, with the goal of reducing process development and process optimization times. (Specification paragraphs [006] – [007].) Toward this goal, the invention generates a model of a simulated multilayer stack prior to the production of the multilayer stack and parameterizes each layer by a thickness and an index of refraction. A user inputs values for the parameters and to designate a plurality of the parameters as

independent variables. The extrema is calculated for a cost function of reflectivity R using the input parameter values, and the sensitivity values S are calculated for the extrema. The optimal reflectivity for the simulated multilayer stack is obtained by calculating a cost function R + S using the plurality of independent variables at once. The simulation of the reflectivity for the multilayer film stack can then be validated using experimental CD swing results (Specification paragraph [030]), however, the calculation of the optimal reflectivity is for a simulated multilayer stack prior to its production.

Windt discloses the modeling of multilayer films with parameter estimation using nonlinear, least-squares curve fitting to user-supplied experimental optical data. (Abstract; Introduction. p. 360, first and fourth paragraphs; Section B, p. 364, first paragraph). Windt thus uses experimental data from an already formed multilayer stack to estimate parameters values in its modeling of the stack. Reflectivity values are then obtained from these parameter values.

In contrast, the invention generates a model of a simulated multilayer stack prior to production of the multilayer stack and parameterizes each layer by a thickness and an index of refraction. A user inputs values for the parameters and designates a plurality of the parameters as independent variables. Unlike Windt, these parameters are not from experimental data since the multiplayer stack has not yet been produced. Since the parameters are not from experimental data, the invention does not use curve fitting algorithms to estimate the parameter values, as taught in Windt. It thus follows that the calculating of the extrema for the cost function of reflectivity R, the sensitivity values S for the extrema, and the cost function R+S to obtain the optimal reflectivity for the simulated multilayer stack in the invention are not the same calculations as in Windt.

For the above reasons, Windt does not teach or suggest generating a model of a simulated multilayer stack prior to production of the multilayer stack and parameterizing

each layer by a thickness and an index of refraction, and obtaining the optimal reflectivity value for the simulated multilayer stack, in combination with the other elements, as recited in amended independent claims 1 and 11.

Claims 1 and 11 are thus allowable over Windt. Applicant submits that claims 2-10 and 12-20 are allowable because they dependent these allowable base claims.

In view of the foregoing, it is submitted that claims 1-20 are allowable over the cited reference. Accordingly, Applicant respectfully requests reconsideration and passage to issue of claims 1-20 as now presented.

Applicants' attorney believes this application in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicants' attorney at the telephone number indicated below.

Respectfully submitted,

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